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FIG.1

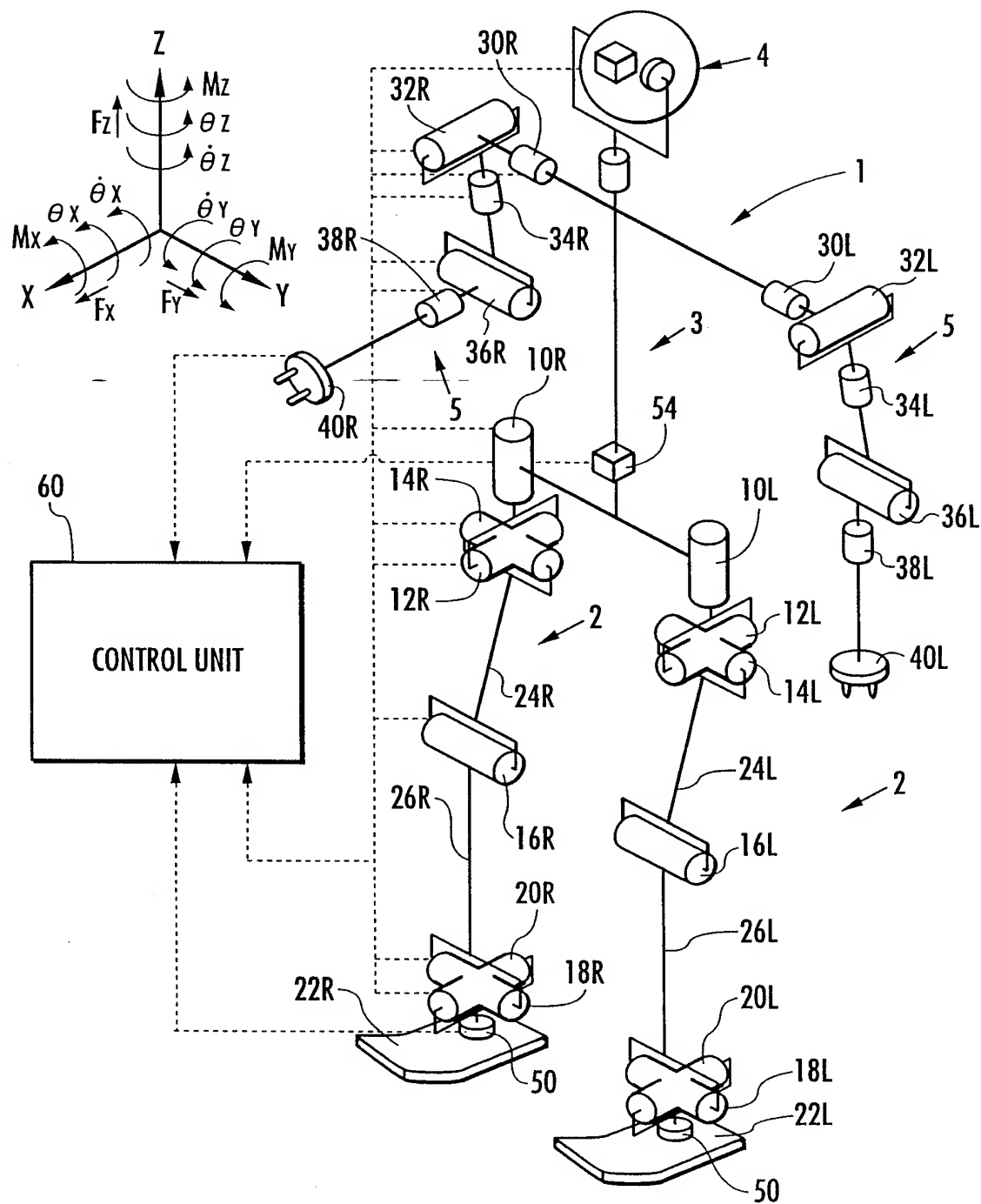
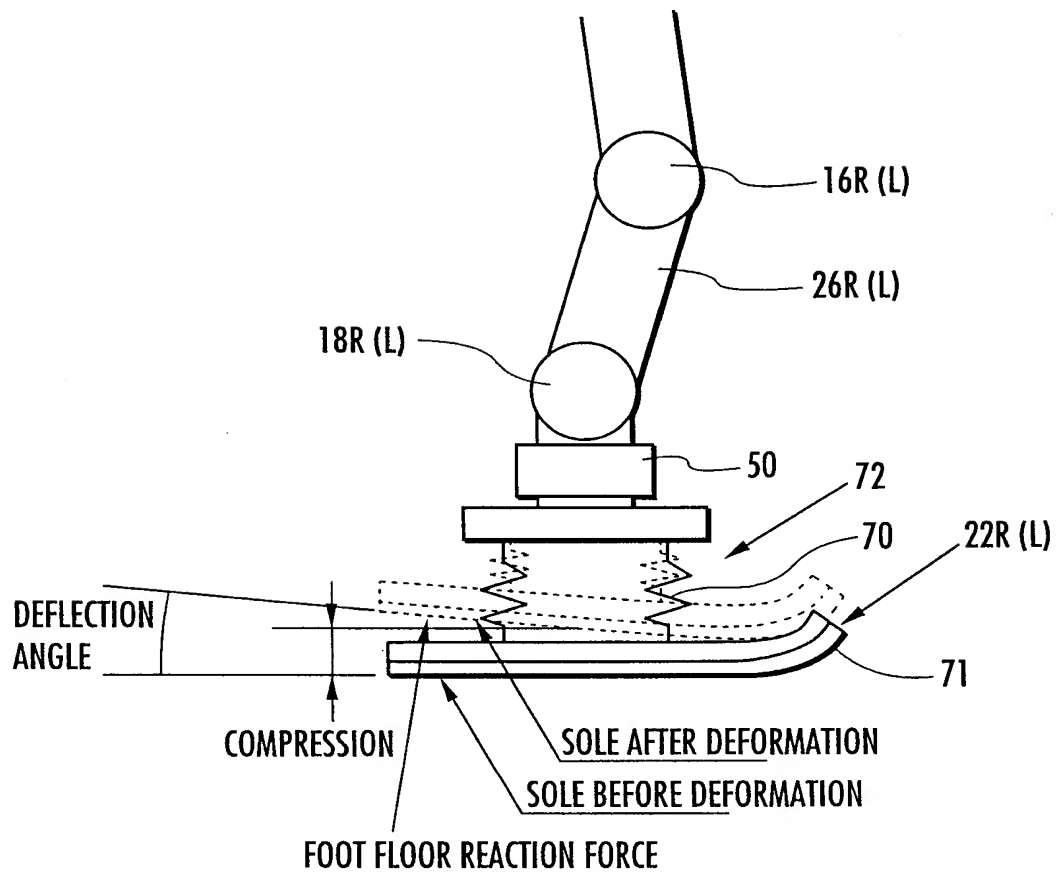
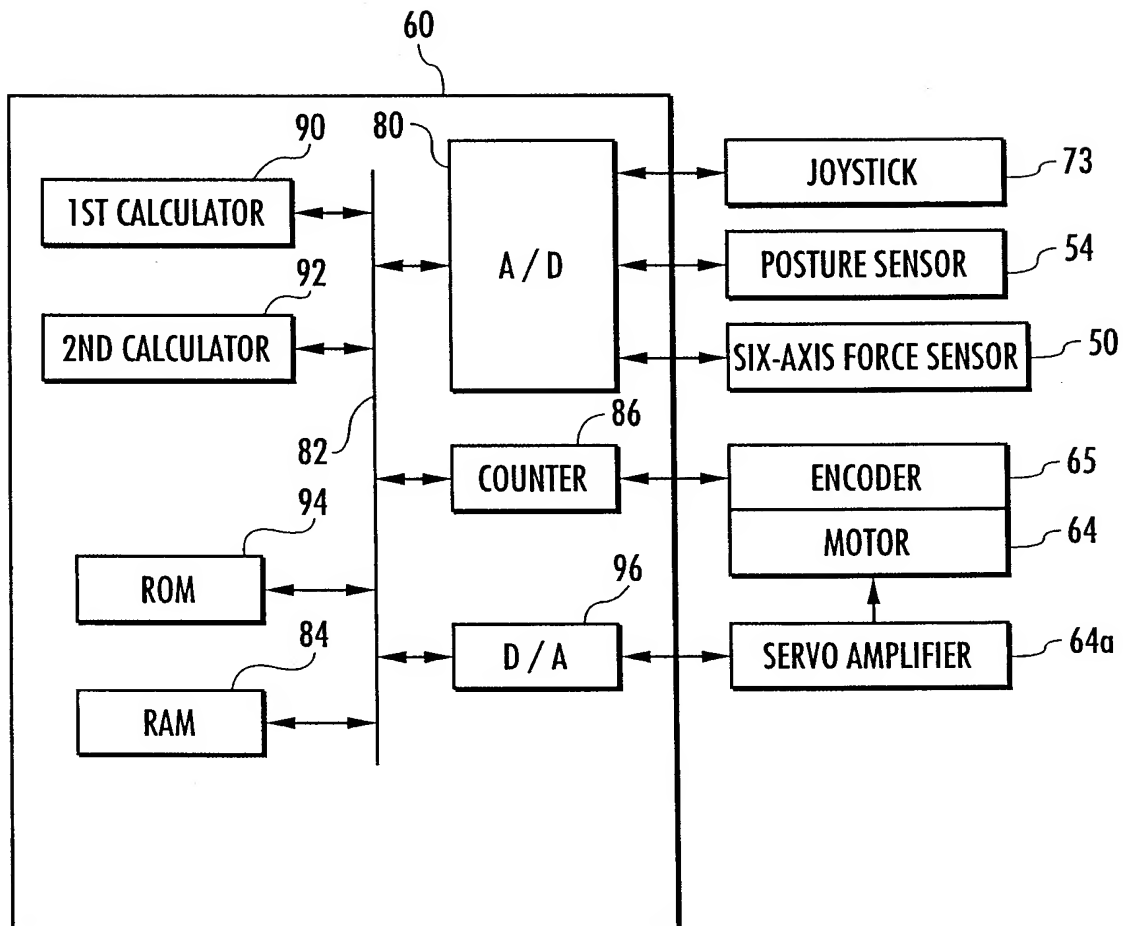


FIG.2



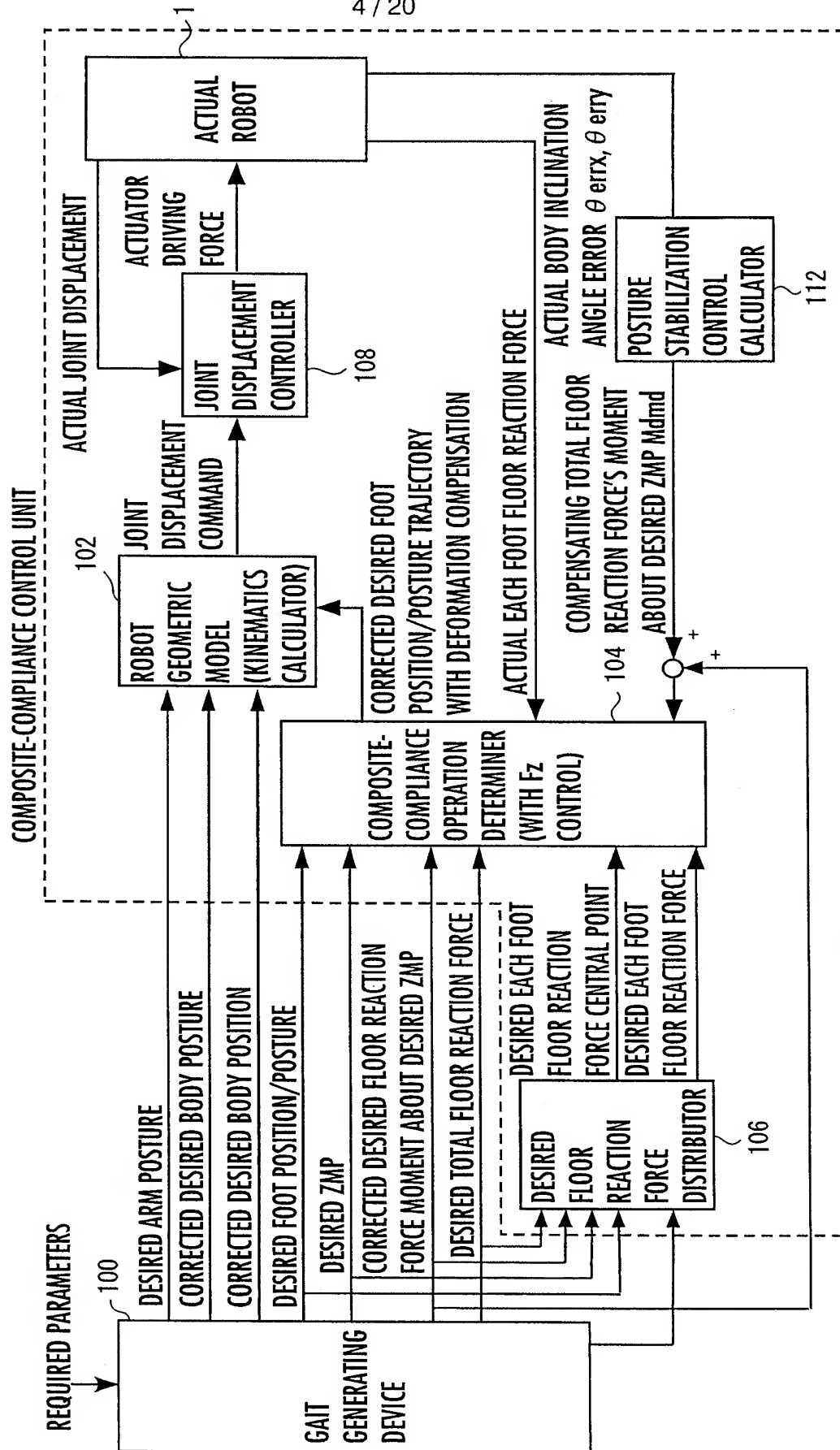
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FIG.3



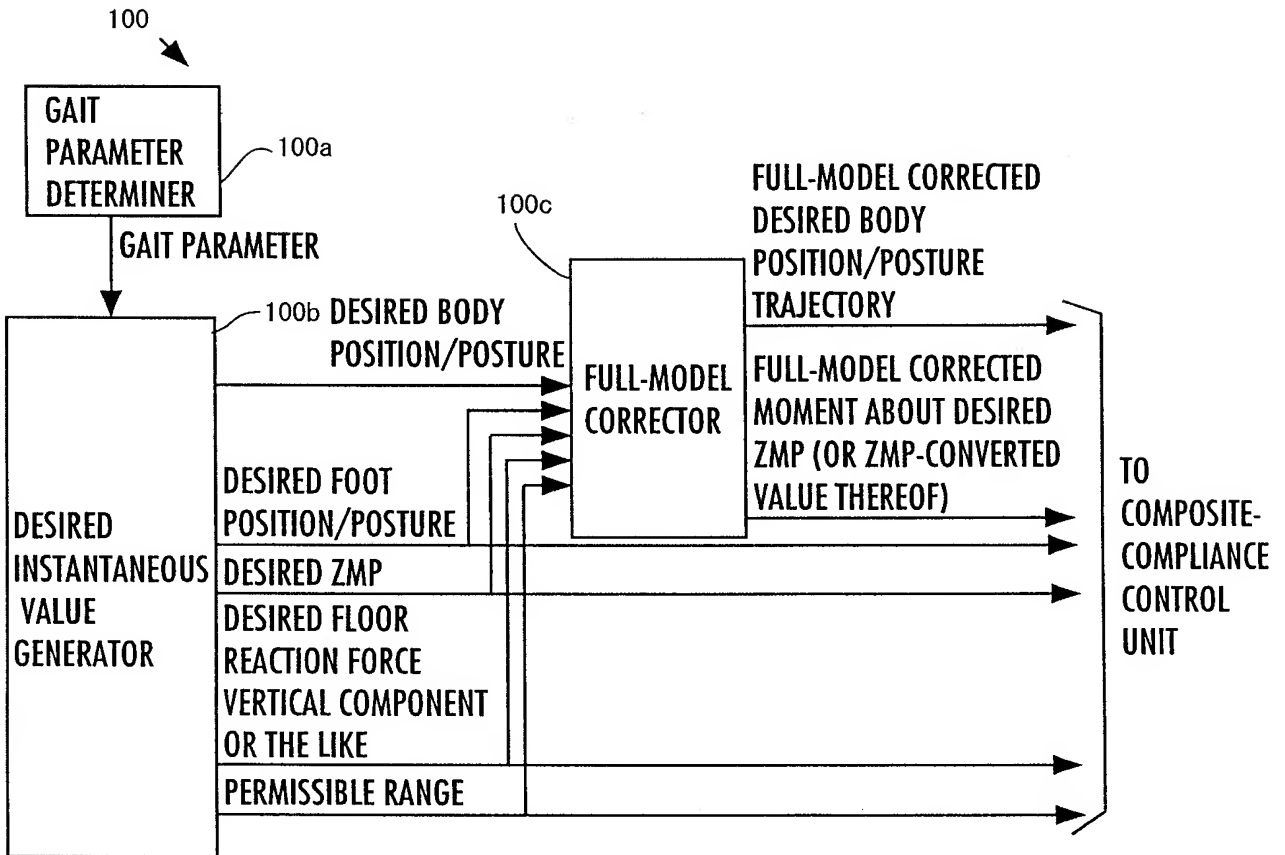
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FIG. 4



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FIG.5



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FIG.6(a)

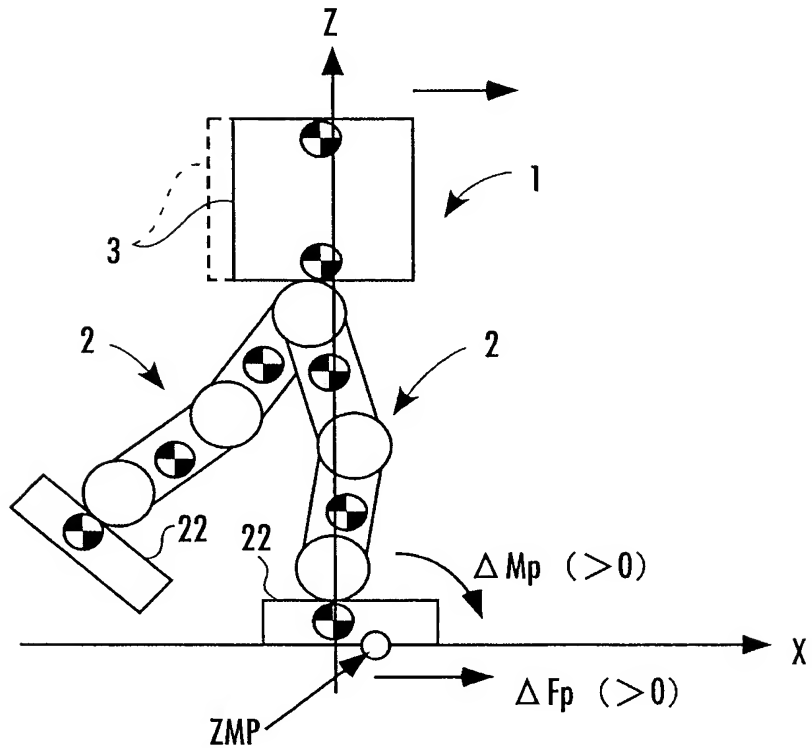
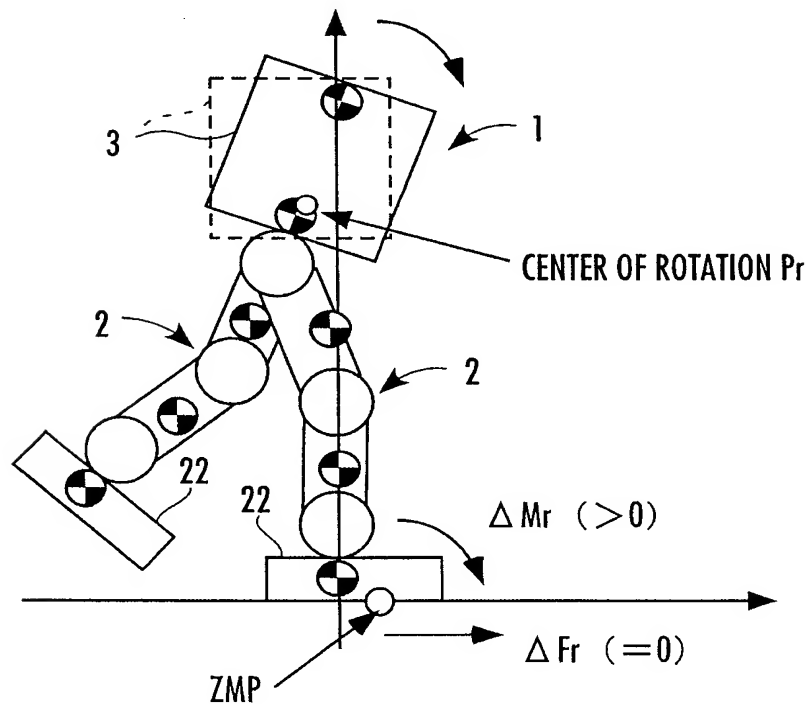
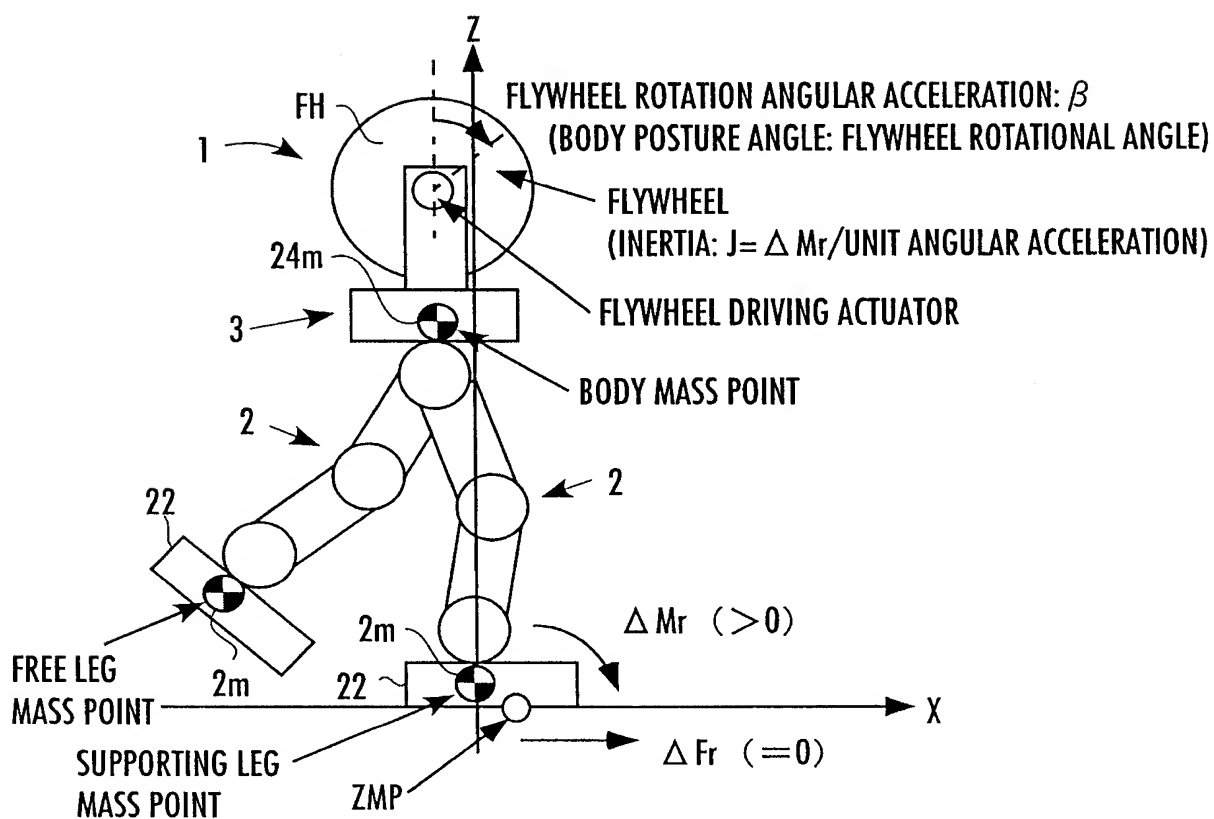


FIG.6(b)



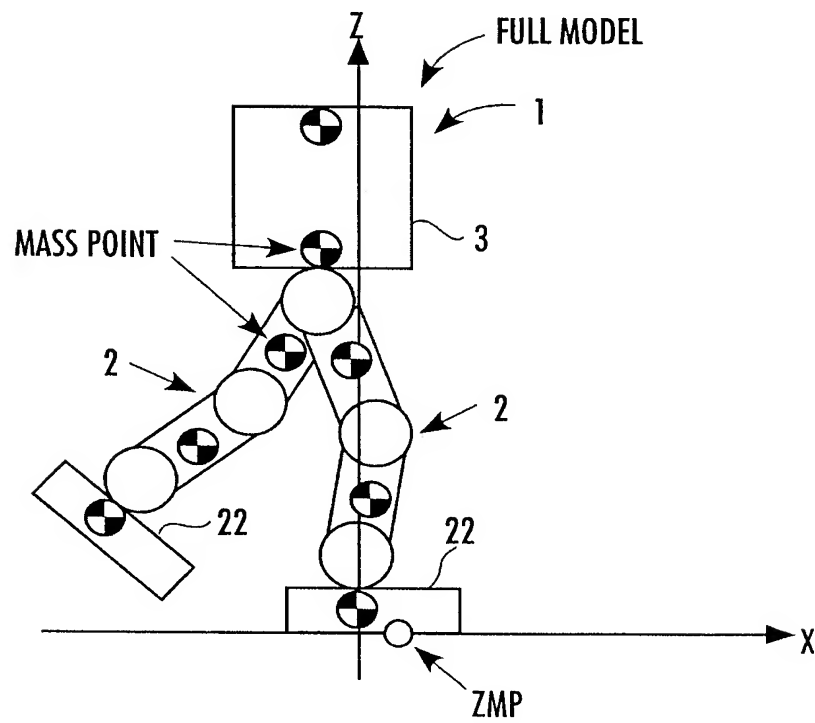
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FIG.7



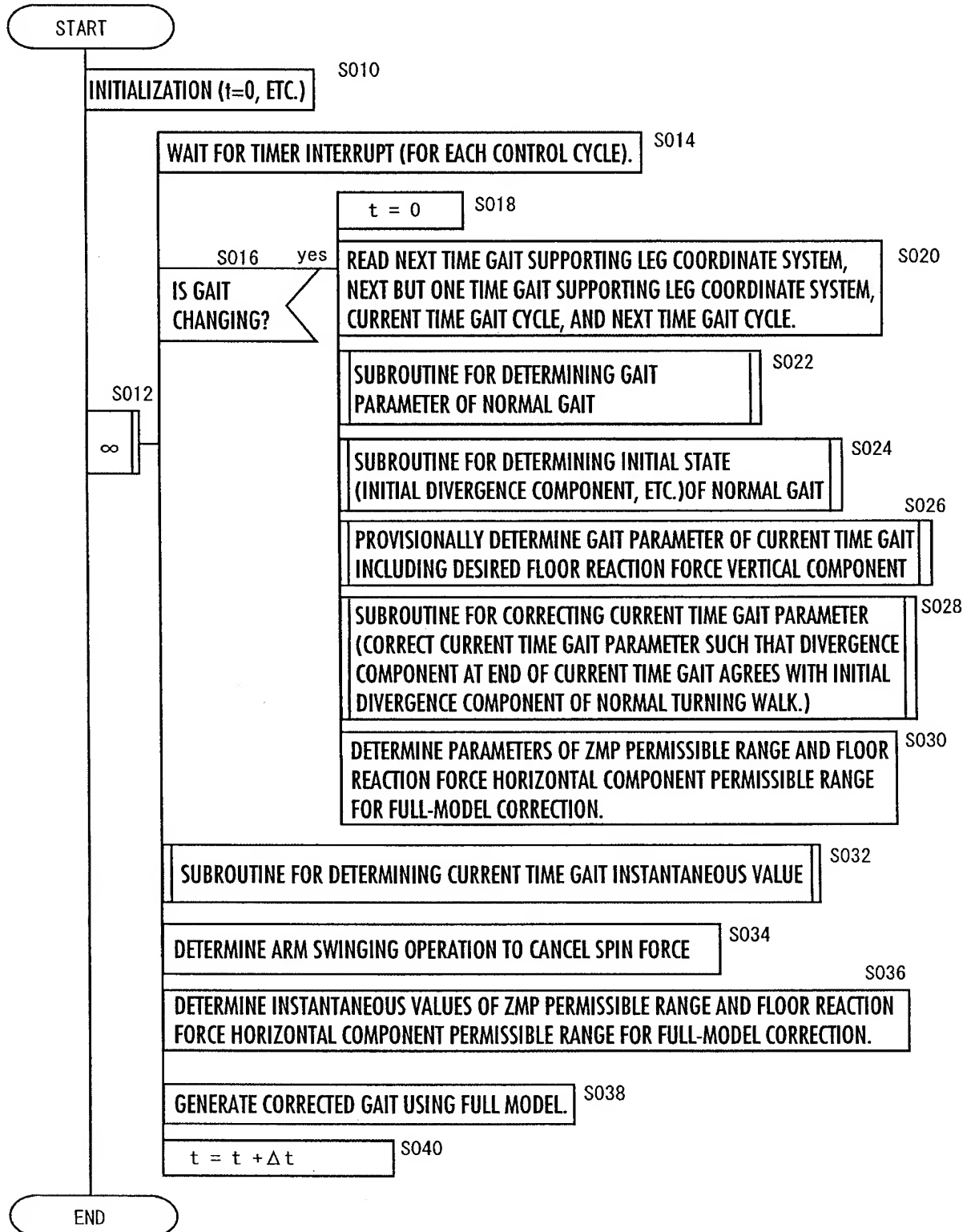
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FIG.8



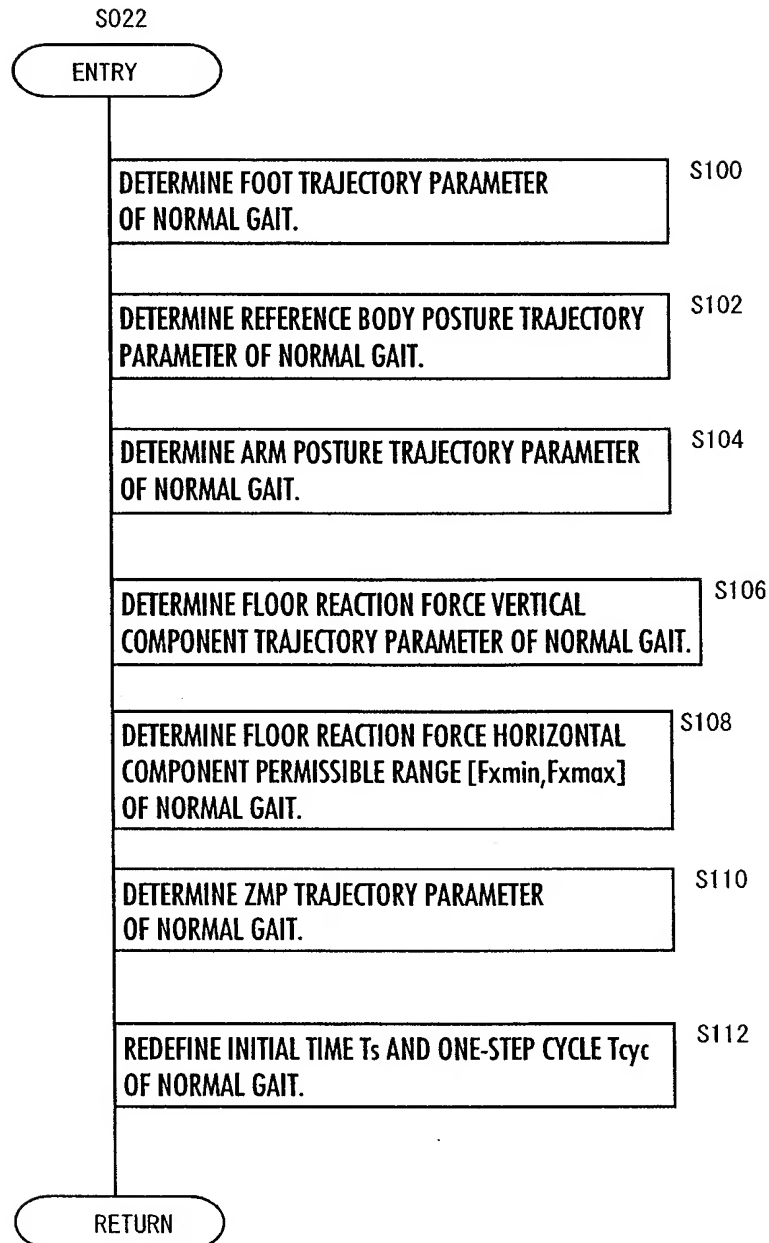
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FIG.9



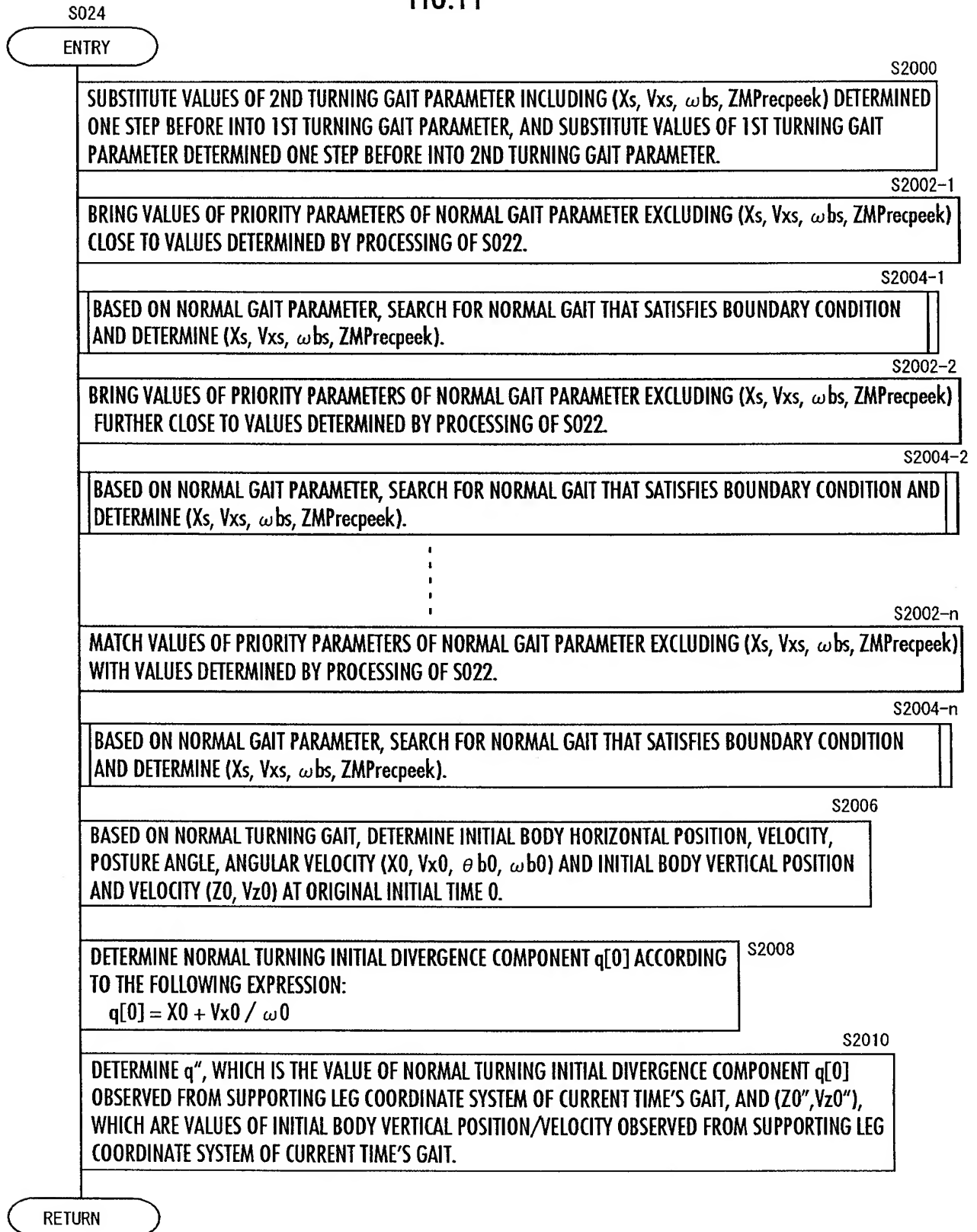
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FIG.10



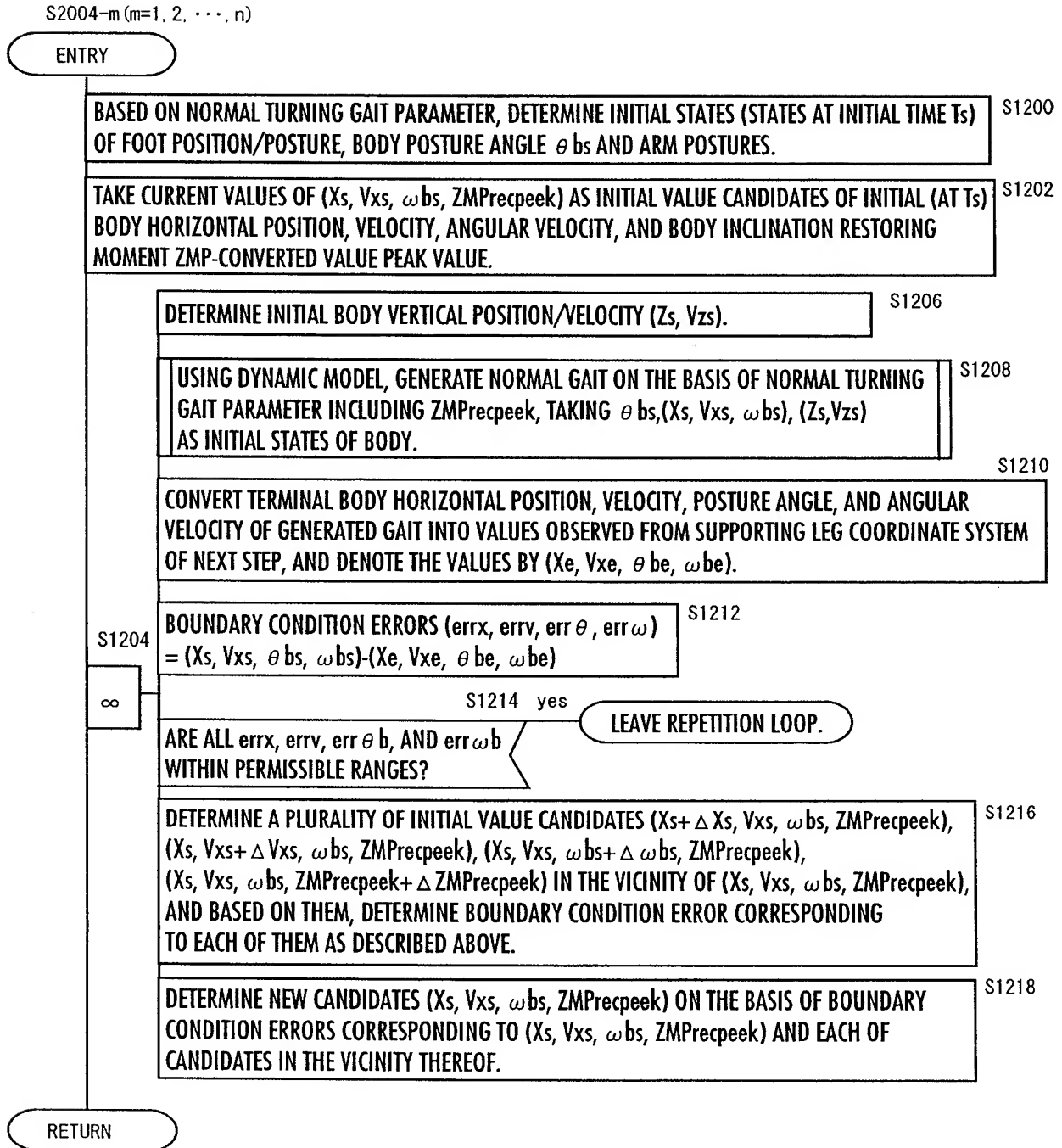
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FIG.11



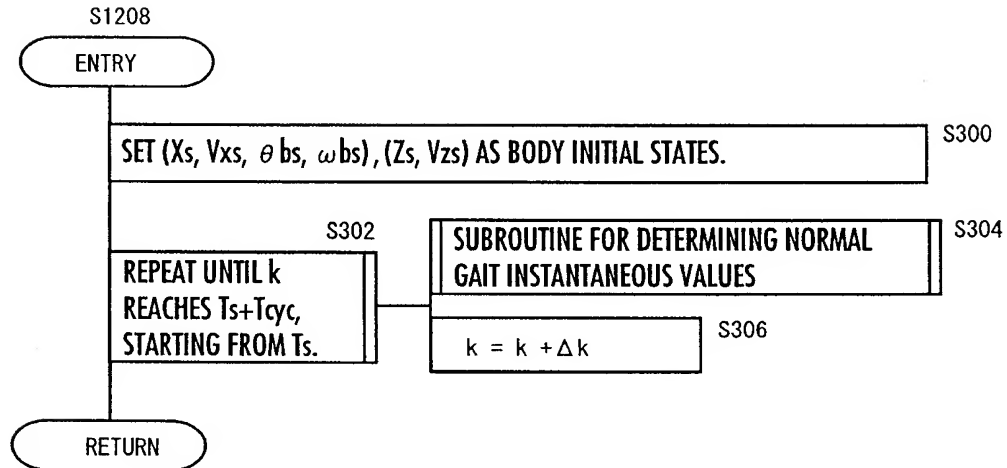
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FIG.12



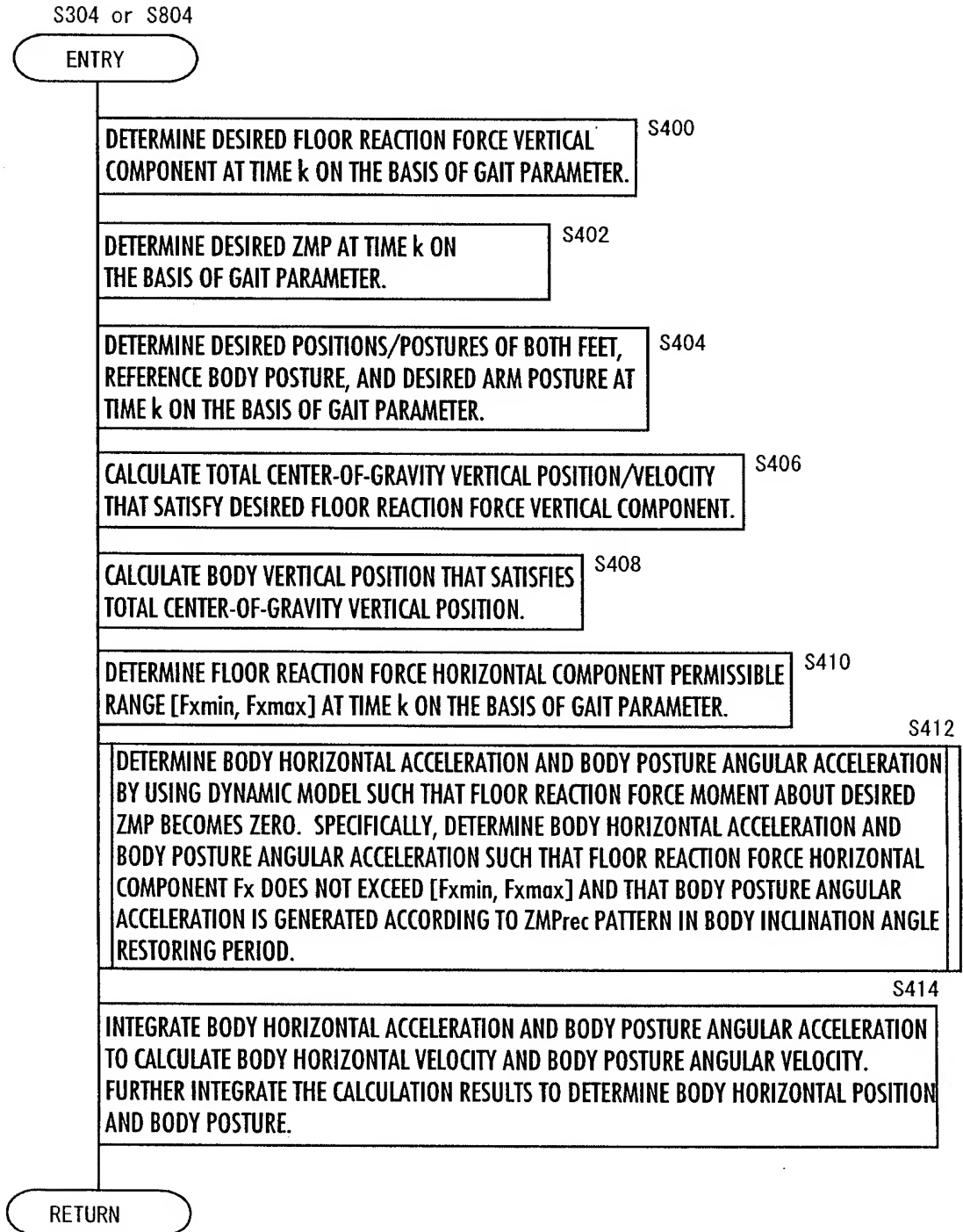
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FIG.13



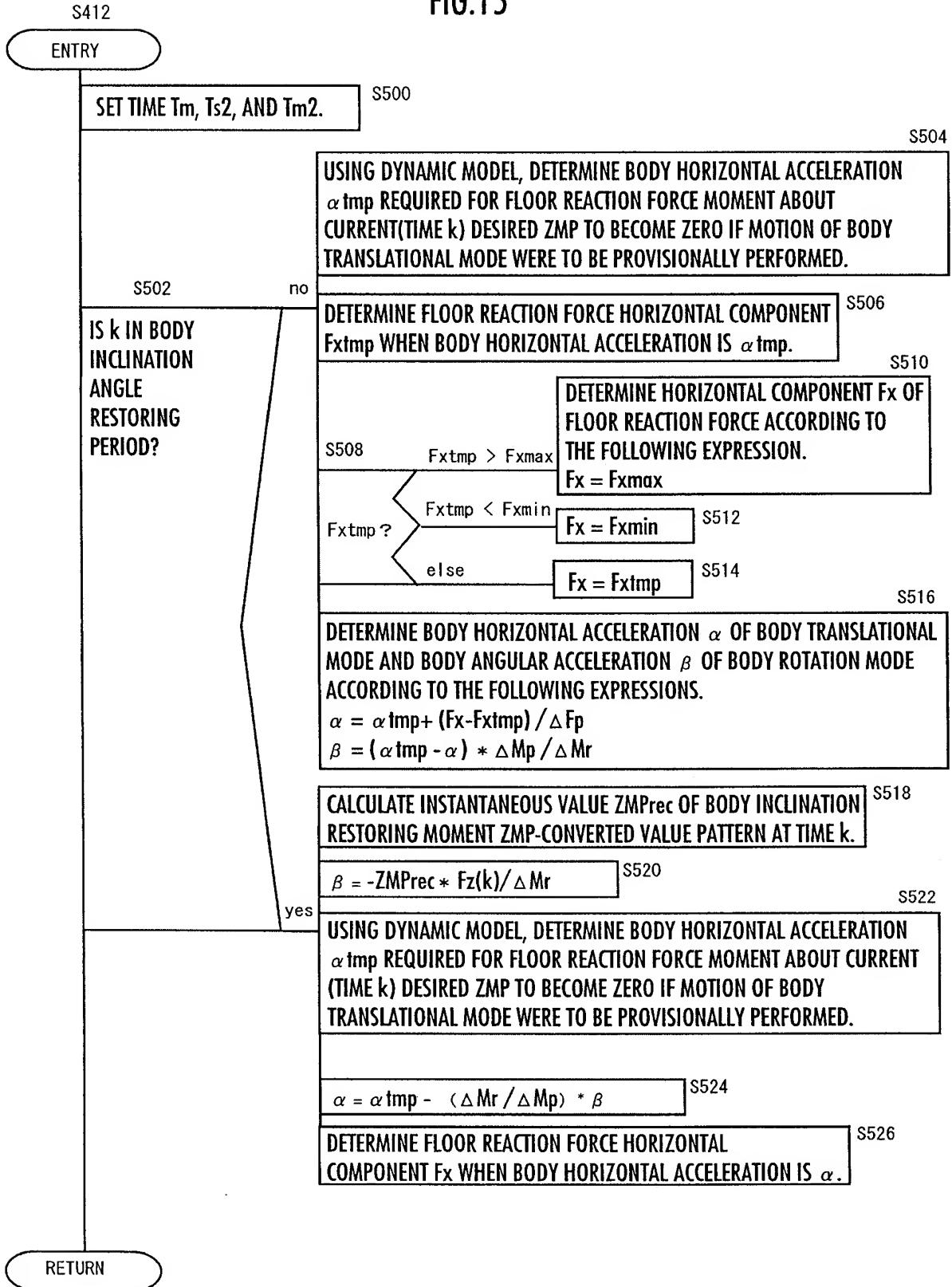
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FIG.14



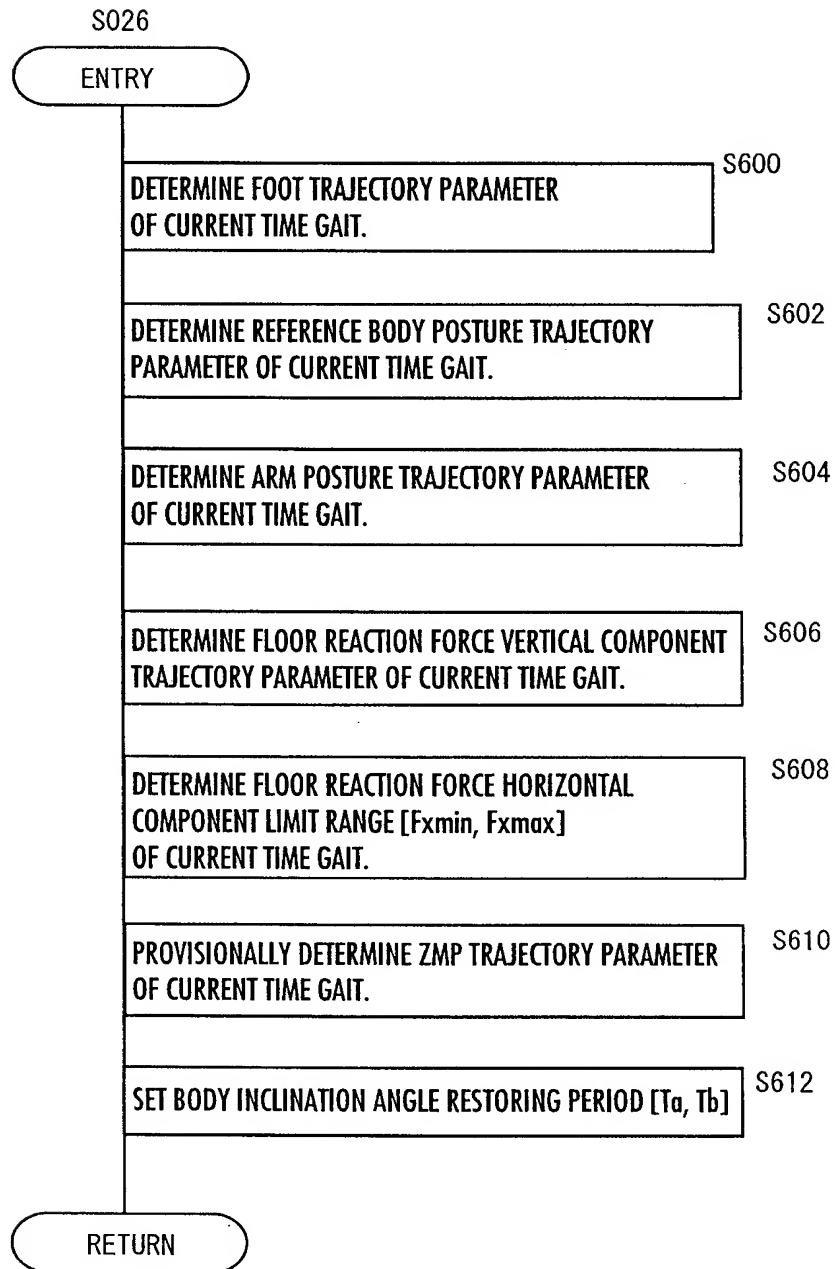
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FIG.15



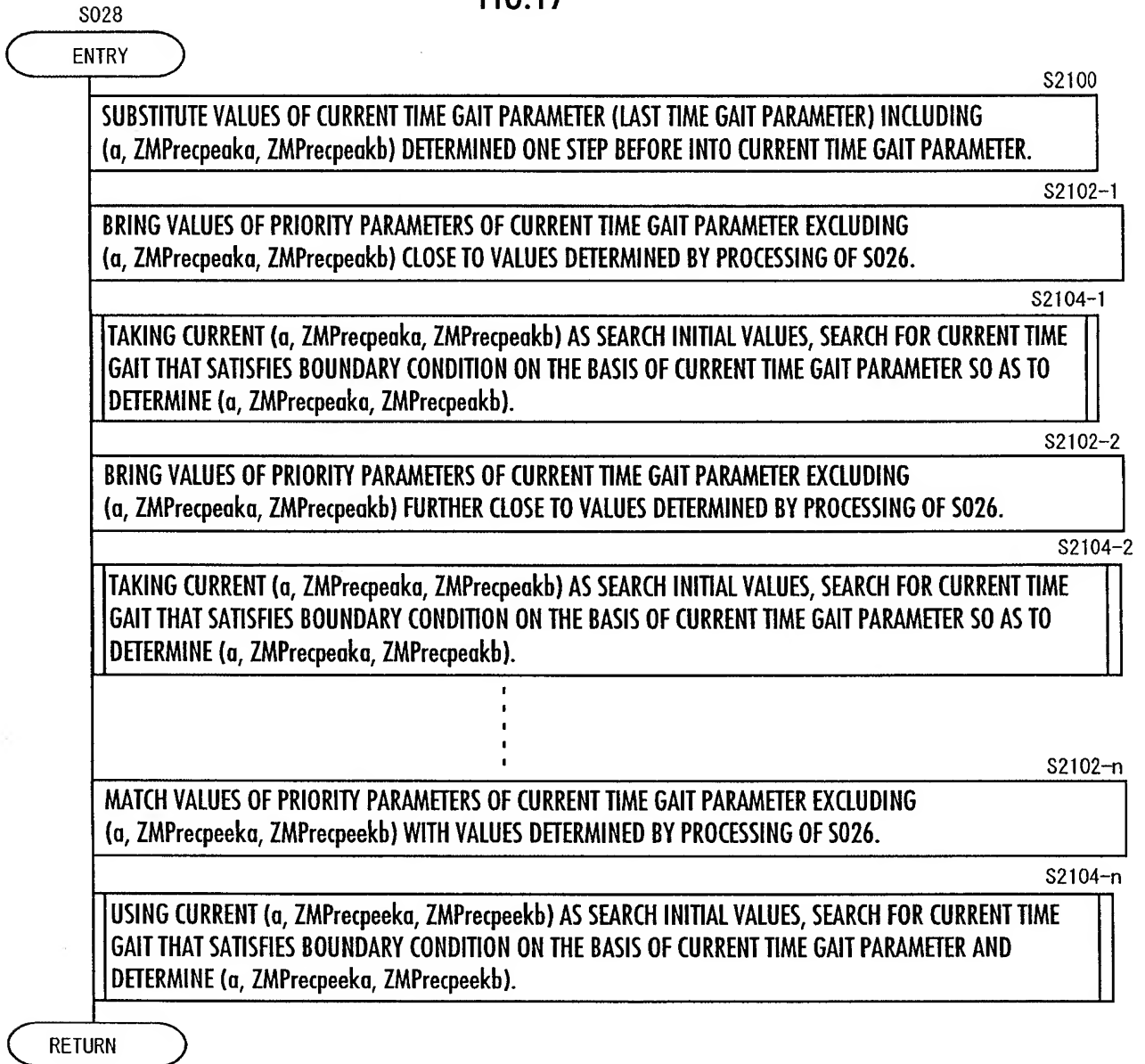
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FIG.16



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FIG.17



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FIG.18

S2104-m (m=1, 2, ..., n)

ENTRY

S1700

TAKE CURRENT VALUES OF (α , ZMP_{Prepeeka}, ZMP_{Prepeekb}) AS INITIAL VALUE CANDIDATES OF ZMP CORRECTED PARAMETER CANDIDATE α AND BODY INCLINATION RESTORING MOMENT ZMP-CONVERTED VALUE PEAK VALUE CANDIDATES (ZMP_{Prepeeka}, ZMP_{Prepeekb}), RESPECTIVELY.

S1704

CALCULATE CURRENT TIME GAIT USING DYNAMIC MODEL UNTIL TERMINATING TIME ON THE BASIS OF PARAMETER OBTAINED BY CORRECTING CURRENT ZMP TRAJECTORY PARAMETER BY ZMP CORRECTED PARAMETER CANDIDATE α , BODY INCLINATION RESTORING MOMENT ZMP-CONVERTED VALUE PEAK VALUE CANDIDATES (ZMP_{Prepeeka}, ZMP_{Prepeekb}), AND OTHER CURRENT TIME GAIT PARAMETERS.

S1706

DETERMINE TERMINAL DIVERGENCE COMPONENT $q0[k]$ ACCORDING TO THE FOLLOWING EXPRESSION FROM BODY POSITION/VELOCITY (X_e , V_e)
AT TERMINATING END OF CURRENT TIME GAIT:
 $q0[k] = X_e + V_{xe} / \omega_0$

S1708

DETERMINE TERMINAL DIVERGENCE COMPONENT ERROR $errq$ ACCORDING TO THE FOLLOWING EXPRESSION:
 $errq = q0[k] - q''$

S1710

TERMINAL BODY INCLINATION ANGLE ERROR θ_{berr}
= NORMAL GAIT INITIAL BODY INCLINATION ANGLE
- CURRENT TIME GAIT INITIAL BODY INCLINATION ANGLE
TERMINAL BODY INCLINATION ANGULAR VELOCITY ERROR ω_{berr}
= NORMAL GAIT INITIAL BODY INCLINATION ANGLE VELOCITY
- CURRENT TIME GAIT INITIAL BODY INCLINATION ANGULAR VELOCITY

S1702

S1712 yes

LEAVE REPETITION LOOP.

∞

ARE ALL $errq$, θ_{berr} , AND ω_{berr} WITHIN PERMISSIBLE RANGES?

S1714

DETERMINE A PLURALITY OF INITIAL VALUE CANDIDATES ($\alpha + \Delta \alpha$, ZMP_{Prepeeka}, ZMP_{Prepeekb}), (α , ZMP_{Prepeeka} + Δ ZMP_{Prepeeka}, ZMP_{Prepeekb}), AND (α , ZMP_{Prepeeka}, ZMP_{Prepeekb} + Δ ZMP_{Prepeekb}) IN THE VICINITY OF (α , ZMP_{Prepeeka}, ZMP_{Prepeekb}), AND BASED ON THEM, DETERMINE ERRORS ASSOCIATED WITH EACH OF THEM AS DESCRIBED ABOVE.

S1716

DETERMINE NEW PARAMETER CANDIDATES (α , ZMP_{Prepeeka}, ZMP_{Prepeekb}) ON THE BASIS OF (α , ZMP_{Prepeeka}, ZMP_{Prepeekb}) AND ERRORS ASSOCIATED WITH EACH OF INITIAL VALUE CANDIDATES IN THE VICINITY THEREOF.

RETURN

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FIG.19

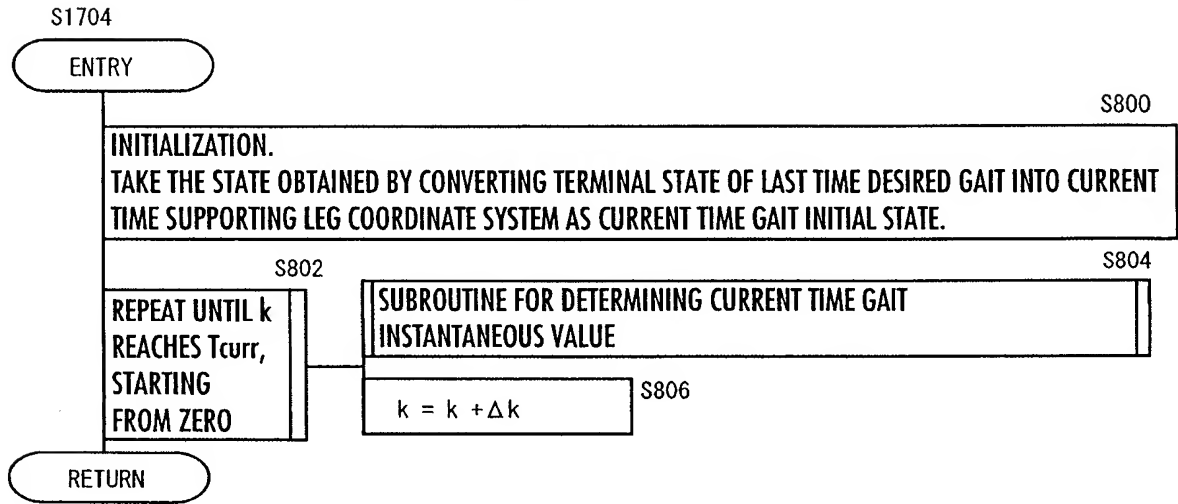


FIG.20

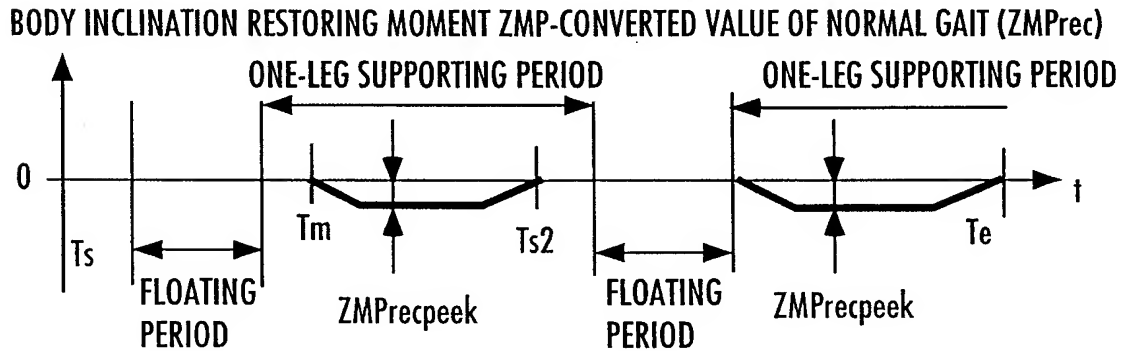
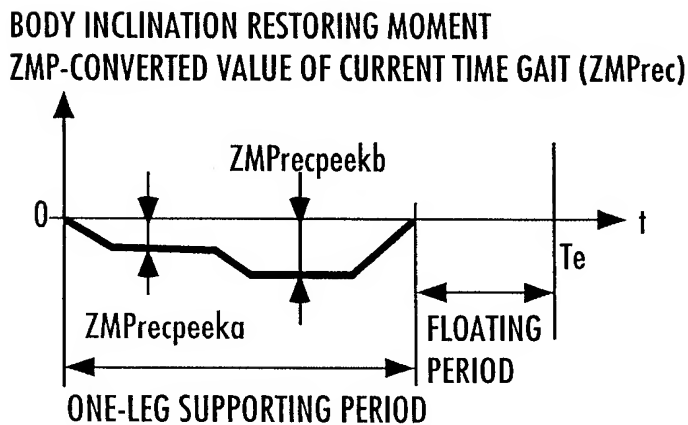


FIG.21



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FIG.22

